

BRITISH STANDARD 341: 1945

Valve Fittings

FOR

COMPRESSED GAS

CYLINDERS

Price-2/6 net, post free

BRITISH STANDARDS INSTITUTION

Incorporated by Royal Charter |

28 VICTORIA STREET, LONDON, S.W.1

Telegrams: Standards, Sowest, London

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7/11/45 R.V. Base

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CO-OPERATING ORGANISATIONS

The Chemical Engineering Industry Committee under which this British Standard was prepared consists of representatives of the following scientific and industrial organisations :

- *Association of British Chemical Manufacturers
- Association of Consulting Engineers, Inc.
- *British Chemical Plant Manufacturers' Association
- Chemical Engineering Group of Society of Chemical Industry
- Coke Oven Manufacturers' Association
- Glass Manufacturers Federation
- Institution of Chemical Engineers
- Institution of Gas Engineers
- Institution of Mechanical Engineers
- Institution of Petroleum
- Institution of Structural Engineers
- Iron and Steel Institute

The industrial organisations marked with an asterisk in the above list, together with the following, were represented on the committee entrusted with the preparation of this Standard :

- Admiralty
- Board of Trade
- Crown Agents for the Colonies
- Department of Scientific & Industrial Research
- High Commissioner for India
- Home Office
- Ministry of Aircraft Production
- British Acetylene Association
- British Association of Refrigeration
- British Corporation Register of Shipping and Aircraft
- British Iron and Steel Federation
- Bureau Veritas Registry of Shipping
- Engineering Insurance Companies
- Federation of British Industries
- Fire Offices Committee
- Lloyds Register of Shipping
- Railway Companies of Great Britain
- Gas Cylinder Makers
- Gas Makers

THIS BRITISH STANDARD, having been approved by the Chemical Engineering Industry Committee and endorsed by the Chairman of the Engineering Divisional Council, was published under the authority of the General Council on April 11th, 1945.

First published, March, 1931.

First revision, April, 1945.

The Institution desires to call attention to the fact that this British Standard does not purport to include all the necessary provisions of a contract.

In order to keep abreast of progress in the industries concerned, British Standards are subject to periodical review. Suggestions for improvements will be recorded and in due course brought to the notice of the committees charged with the revision of the standards to which they refer.

This British Standard requires reference to the following :

B.S. 18. Tensile testing of metals.

B.S. 84. Screw threads of Whitworth form.

B.S. 131. Forms of notched bar test pieces.

A complete list of British Standards, numbering over one thousand, indexed and cross-indexed for reference, together with an abstract of each standard will be found in the Institution's Yearbook.

British Standards are revised, when necessary, either by the issue of amendment slips or revised editions. It is important that users of British Standards should ascertain that they are in possession of the latest amendments or edition.

Users wishing to be kept informed of any alteration to this standard should notify Publications Sales Department of the Institution, giving the number and title of the standard.

BRITISH STANDARD SPECIFICATION FOR VALVE FITTINGS FOR COMPRESSED GAS CYLINDERS

FOREWORD

The British Standard for valve fittings for compressed gas cylinders was first issued in 1931.

In the present revision no changes have been made in the basic dimensions of the cylinder neck threads and outlet threads standardised in the 1931 edition, and interchangeability of connections with valves made to the 1931 edition or to the present standard is maintained. The Appendix on gauges has, however, been revised and certain modifications have been adopted on the recommendations of the National Physical Laboratory.

The scope of the Standard has been extended by the inclusion of the dimensions and gauges for valves of 1.25 in. nominal size.

The former edition of the Standard was limited to the dimensional features of the valves. In the present edition, schedules giving the essential properties of the steel and bronze or brass are included.

The present Standard also gives the dimensions for valving capsules.

The scope of the present Standard is as follows :

a. The material and dimensions of valve fittings for compressed gas cylinders covered by B.S. 399, 400, 401 and 1045, for practically all the gases in general use.

b. A safety release for carbon dioxide (CO₂) cylinders.

c. The dimensions of valving capsules.

d. Inspection gauges for the taper threads on the valve fittings and in the necks of gas cylinders.

SPECIFICATION

PART ONE : MATERIAL FOR VALVE FITTINGS

MATERIAL

1. Valves for cylinders to contain the various gases given in Tables 3 and 4 shall be made of :

a. Steel conforming to the specification given in Schedule A, below, or

b. Bronze or brass conforming to the specification given in Schedule B, below,
as indicated in Column 3 of each table.

SCHEDULE A. STEEL VALVES

QUALITY

2. The steel shall be of high quality and shall show on analysis not more than 0.05 per cent of phosphorus or 0.05 per cent of sulphur.

FABRICATION

3. The valve body shall not be a casting.

MECHANICAL PROPERTIES

4. The material from which the valve bodies are machined shall comply with the tensile and impact tests specified below :

a. Tensile test. A tensile test carried out on a British Standard Test Piece 'C,'* or on a subsidiary round test piece, shall show the following properties :

Minimum ultimate tensile stress	28 tons/sq. in.
Minimum elongation	22 per cent.
Minimum reduction of area at fracture	45 per cent.

b. Impact test. A notched bar impact test carried out on a British Standard test piece† shall give an impact value of not less than 40 ft. lb.

SCHEDULE B. BRONZE OR BRASS VALVES

QUALITY

5. The material shall consist of bronze or brass. Since, however, the material must be suitable for use with the gas to be contained in the cylinder, the chemical composition shall be the subject of agreement between purchaser and manufacturer.

FABRICATION

6. The valve body shall not be a casting.

TEST SAMPLES FOR MECHANICAL TESTS

7. The test samples for the tensile test specified in Clause 8 shall, where practicable, be taken from a valve stamping ; where this is not practicable, the test piece shall be treated in the same manner as the valve so as to be representative of the material in the condition in which it is to be used.

TENSILE TEST

8. A tensile test carried out on a British Standard Test Piece 'C,'* or a subsidiary round test piece, shall show the following properties :

Minimum ultimate tensile stress	28 tons/sq. in.
Minimum elongation	22 per cent.
Minimum reduction of area at fracture	40 per cent.‡

* B.S. 18. Tensile Testing of Metals.

† B.S. 131. Forms of Notched Bar Test Pieces.

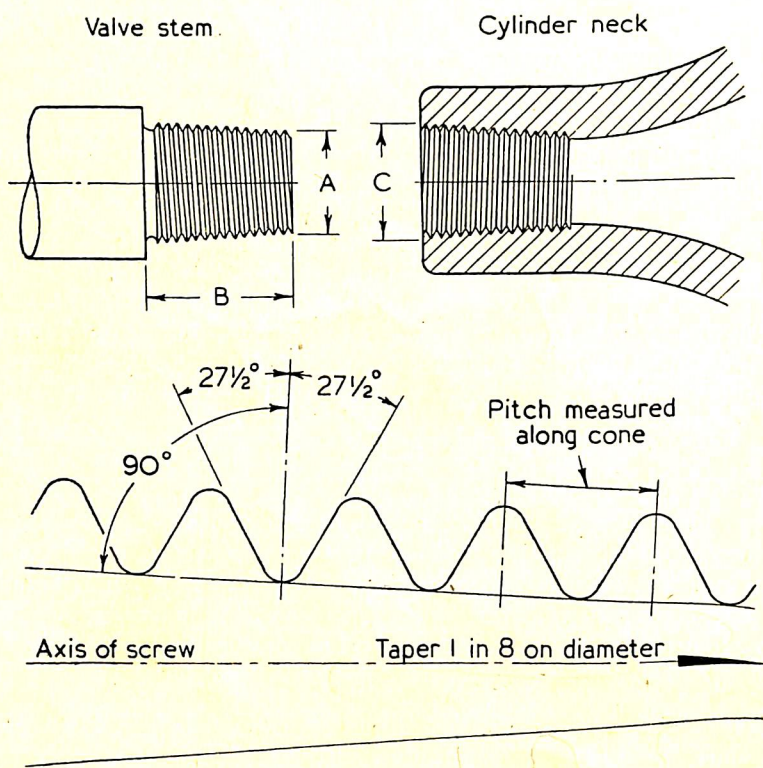
‡ NOTE. The value of 40 per cent has been adopted by the Committee on the basis of such data as was available to them, and will be confirmed as soon as there is the opportunity to proceed with further research.

PART TWO : DIMENSIONS OF VALVE FITTINGS

SCREW THREADS ON STANDARD VALVE STEMS AND IN CYLINDER NECKS

9. There shall be three standard sizes of taper screw thread connections between valve stems and cylinders. They shall be designated by the sizes 0.715 in., 1 in. and 1.25 in., which represent the maximum major diameter of the thread at the end of the valve stem.

The principal dimensions of these screw threads shall be as given in Table 1 and Fig. 1.



Whitworth form thread, right hand, normal to surface of cone

Fig. 1.

TABLE 1
PRINCIPAL DIMENSIONS OF STANDARD TAPER SCREW
THREADS ON VALVE STEMS AND IN CYLINDER NECKS

1	2	3	4	5	6
Nominal size of valve	Threads per inch measured along cone	Max. major dia. A	Length B	Min. major dia. C	Minimum length of engagement*
in.		in.	in.	in.	in.
0.715	14	0.715	1 $\pm \frac{1}{64}$	0.809	$\frac{3}{4}$
1	14	1.000	1 $\frac{1}{8} \pm \frac{1}{64}$	1.094	$\frac{3}{4}$
1.25	11	1.250	1 $\frac{3}{8} \pm \frac{1}{32}$	1.375	1

It is recommended that the cylinder neck for the taper-threaded valve having a 1 in. diameter stem, shall be screwed internally for a depth of not less than $1\frac{1}{16}$ in.

The screw threads on standard valve stems and in cylinder necks shall lie between the diametral limits stated in Table 2. Recommended limit gauges for controlling the screw threads between these limits are given in the Appendix.

NOTE. The National Physical Laboratory is prepared to check such limit gauges for conformity with this Specification. Full particulars of the tests and the fees charged may be obtained on application to the Director, National Physical Laboratory, Teddington, Middlesex.

TABLE 2
LIMITS FOR STANDARD TAPER SCREW THREADS
ON VALVE STEMS AND IN CYLINDER NECKS

1	2	3	4	5	6
Nominal size of valve	Element	Diameter of thread on stem at small end (see Fig. 1)		Diameter of thread at mouth of cylinder (see Fig. 1)	
		max.	min.	max.	min.
in.		in.	in.	in.	in.
0.715	Major diameter	0.715 0	0.707 0	0.819 7	0.809 0
	Effective diameter	0.669 2	0.663 9	0.768 5	0.763 2
	Minor diameter	0.623 4	0.612 7	0.725 4	0.717 4
1.0	Major diameter	1.000 0	0.992 0	1.104 7	1.094 0
	Effective diameter	0.954 2	0.948 9	1.053 5	1.048 2
	Minor diameter	0.908 4	0.897 7	1.010 4	1.002 4
1.25	Major diameter	1.250 0	1.239 5	1.389 0	1.375 0
	Effective diameter	1.191 7	1.184 7	1.323 7	1.316 7
	Minor diameter	1.133 4	1.119 4	1.268 9	1.258 4

* When the valve stem is screwed down tight.

SPECIAL VALVE STEMS

10. If desired as an alternative to the *taper* threads in Clause 9, cylinders and valve stems for Nitrous oxide, Sulphur dioxide, Ethylene, Helium, and Neon, and for small cylinders of other gases may be screwed *parallel*. In such cases, one or other of the following screw threads shall be used :

Thread	Length of valve stem
$\frac{1}{4}$ in. B.S. Pipe, parallel thread, 19 t.p.i.	$\frac{5}{8} \pm \frac{1}{64}$ in.
$\frac{1}{2}$ in. B.S. Pipe, parallel thread, 14 t.p.i.	$1 \pm \frac{1}{64}$ in.
$\frac{3}{4}$ in. B.S. Pipe, parallel thread, 14 t.p.i.	$1\frac{1}{8} \pm \frac{1}{64}$ in.

The limits and tolerances allowed on these threads shall be those laid down in Tables 18 and 19 of B.S. No. 84 : 1940, 'Screw Threads of Whitworth Form.'

OUTLET OF VALVE FITTING

11. The outlet of the valve fitting shall be screwed parallel and shall conform to the requirements specified in Tables 3 and 4, Columns 4 to 8.

The outlet bosses for Ammonia, Carbon dioxide, Chlorine, Ethyl chloride, Ethylene oxide, Freon, Methyl bromide, Methyl chloride, Nitrous oxide, Phosgene, and Sulphur dioxide, shall be screwed externally, and together with the corresponding union nuts shall be in accordance with Columns 4 to 8 of Tables 3 and 4.

All other outlet bosses shall be screwed internally.

Cylinders containing gases or gas mixtures not specifically referred to in Tables 3 and 4 shall have valve outlets with left hand threads in the case of combustible gases or gas mixtures, and right hand threads in the case of non-combustible gases or gas mixtures. Such threads shall be of one of the standard sizes dealt with in this Specification.

The limits and tolerances on the screw threads of outlets shall be those given in B.S. 84 : 1940, for 'Medium' fit thus :

For all B.S. Pipe threads	Tables 18 and 19	} of B.S. 84 : 1940
For $1\frac{1}{16}$ in. $\times$ 20 t.p.i., Whit. form	Tables 24A* and 26	
For 0.860 in. $\times$ 14 t.p.i., Whit. form	Tables 24A* and 26	

SPINDLE

12. The spindle end shall be square and of the size shown in Column 9 of Tables 3 and 4, unless a hand-wheel is permanently attached to the spindle.

PART THREE : MARKING

13. Valves shall be stamped with the name or the chemical symbol of the gas for which they are to be used.

* Table 24A appears in the War Emergency Amendment No. 1, June, 1942, to B.S. 84 :

TABLE 3. DETAILS OF VALVES
See Clause 12

1	2	3	4	5	6	7	8	9
Gas		Material of valve	Screw thread of outlet (parallel threads)					Width across flats of square on spindle
Name	Symbol		Male or female	Hand	Form	Nom. size	Threads per inch	
Acetylene*	C ₂ H ₂	Bronze	F	L.H.	B.S.P.	in. $\frac{5}{8}$	14	in. $\frac{9}{32}$
Air	—	Bronze	F	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Ammonia	NH ₃	Steel	M	R.H.	B.S.P.	$\frac{1}{2}$	14	$\frac{3}{8}$
Argon	A	Bronze	F	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Carbon dioxide	CO ₂	Bronze	M	R.H.	Whit.	.860	14	—
Carbon monoxide	CO	Bronze	F	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Chlorine	Cl	Steel	M	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Coal gas and Town gas	}	Steel or Bronze	F	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Ethyl chloride (inflammable and non-inflammable grades).		Steel or Bronze	M	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Ethylene	C ₂ H ₄	Bronze	F	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Ethylene oxide	C ₂ H ₄ O	Steel	M	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Freon	CCl ₂ F ₂	Steel or Bronze	M	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Helium	He	Bronze	F	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Hydrogen	H	Bronze	F	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Methane	CH ₄	Bronze	F	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Methyl bromide	CH ₃ Br	Steel or Bronze	M	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Methyl chloride (inflammable and non-inflammable grades).	CH ₃ Cl	Steel or Bronze	M	L.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Neon	Ne	Bronze	F	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Nitrogen	N	Bronze	F	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Nitrous oxide	N ₂ O	Bronze	M	R.H.	Whit.	$1\frac{1}{16}$	20	$1\frac{15}{64}$
Oxygen	O	Bronze	F	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{9}{32}$
Phosgene	COCl ₂	Steel	M	R.H.	B.S.P.	$\frac{5}{8}$	14	$\frac{3}{8}$
Sulphur dioxide	SO ₂	Steel or Bronze	M	R.H.	B.S.P.	$\frac{1}{2}$	14	$\frac{3}{8}$

* Excluding small cylinder intended for vehicle lighting, and cylinders for special purposes, e.g., marine lighting equipment.

PART FOUR :

SAFETY RELEASE FOR CARBON DIOXIDE CYLINDERS

14. The valve fittings for gas cylinders for Carbon dioxide of 12 lb. and over water capacity shall be provided with a safety release in the body of the fitting.

The safety release device in valves for cylinders used for export, refrigerating, and fire extinguishing, shall consist of a disc of softened copper or other suitable material, so arranged as to burst at a pressure between 2600 and 2850 lb. per sq. in.

TABLE 4. DETAILS OF ALTERNATIVE VALVES
FOR USE WITH CYLINDERS OF 25 lb. WATER CAPACITY
AND UNDER

1	2	3	4	5	6	7	8	9
Gas		Material of valve	Screw thread of outlet (parallel threads)					Width across flats of square on spindle
Name	Symbol		Male or female	Hand	Form	Nom. size	Threads per inch	
Chlorine	Cl	Steel	M	R.H.	B.S.P.	in. $\frac{3}{8}$	19	in. $\frac{9}{32}$
Ethyl chloride (inflammable and non-inflammable grades).	C ₂ H ₅ Cl	Steel or Bronze	M	L.H.	B.S.P.	$\frac{1}{4}$	19	$\frac{9}{32}$
Ethylene oxide	C ₂ H ₄ O	Steel	M	L.H.	B.S.P.	$\frac{3}{8}$	19	$\frac{9}{32}$
Freon	CCl ₂ F ₂	Steel or Bronze	M	R.H.	B.S.P.	$\frac{3}{8}$	19	$\frac{9}{32}$
Methyl bromide	CH ₃ Br	Steel or Bronze	M	R.H.	B.S.P.	$\frac{1}{4}$	19	$\frac{9}{32}$
Methyl chloride (inflammable and non-inflammable grades).	CH ₃ Cl	Steel or Bronze	M	L.H.	B.S.P.	$\frac{1}{4}$	19	$\frac{9}{32}$
Phosgene	COCl ₂	Steel	M	R.H.	B.S.P.	$\frac{3}{8}$	19	$\frac{9}{32}$
Sulphur dioxide	SO ₂	Steel or Bronze	M	R.H.	B.S.P.	$\frac{1}{4}$	19	$\frac{9}{32}$

PART FIVE : VALVING CAPSULES**GENERAL**

15. The valving capsules provided for in this part of the Specification are intended for fitting between the taper threaded portion of cylinder valves and the internally threaded portion of cylinder necks, to ensure a gas-tight joint when the valves are screwed home.

DIMENSIONS

16. The capsules shall consist of a tapered sleeve of soft metal, and shall conform to the dimensions given in Table 5.

NOTE. The purchaser should state whether the capsules are to be closed or open at the small end.

TABLE 5. VALVING CAPSULES

Nominal size of valve	Inside diameter at large end	Inside diameter at small end	Length	Approx. thickness
in.	in.	in.	in.	in.
0.715	0.824	0.715	$\frac{7}{8}$	0.005
1.0	1.109	1.000	$\frac{7}{8}$	0.005
1.25	1.375	1.250	1	0.005

APPENDIX

RECOMMENDED GAUGES

The gauges given in this Appendix are inspection gauges recommended for checking the threads on the valve stems and the threads in the cylinder necks. They are not for checking other gauges. All the gauges should be hardened.

The thread forms of the gauges for the valve stem and cylinder neck are shown in Figs. 2a and 2b.

All the gauges are so designed that when pressed or screwed home by hand, the neck of the cylinder, or the stem of the cylinder valve, should protrude beyond surface a, but not beyond surface b.

Each gauge should be marked as follows :

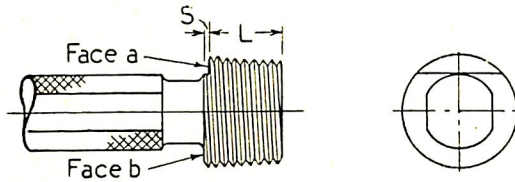
- a. Nominal size of valve.
- b. B.S. 341 (together with a suffix identifying it with the Figure in the Specification).
- c. Manufacturer's name or trade mark.
- d. Serial No.

A typical example is given below :

1 in. valve
B.S. 341/3
A. B. & Co. Ltd.
1234

It is recommended that all ring gauges should be tested by means of suitable check gauges.

**TABLE 6. FULL FORM PLUG SCREW GAUGE
FOR TESTING THREAD IN CYLINDER NECK**



For form of thread see Fig. 2a.

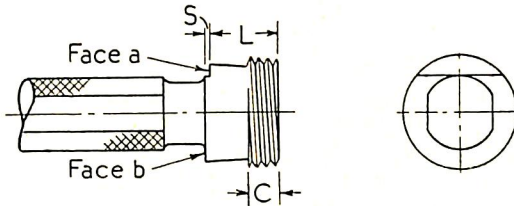
Fig. 3.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in.	Major diameter at face a	in. 0.809 0	0	0.000 6
0.715	Effective diameter at face a	0.763 2	0	0.000 6
	Minor diameter at face a	0.717 4	0	0.000 9
	S	0.047	0.001	0
	L	$\frac{3}{4}$	0.01	0.01
1.0	Major diameter at face a	1.094 0	0	0.000 6
	Effective diameter at face a	1.048 2	0	0.000 6
	Minor diameter at face a	1.002 4	0	0.000 9
	S	0.047	0.001	0
	L	$\frac{3}{4}$	0.01	0.01
1.25	Major diameter at face a	1.375 0	0	0.000 9
	Effective diameter at face a	1.316 7	0	0.000 9
	Minor diameter at face a	1.258 4	0	0.001 4
	S	0.063	0.001	0
	L	1	0.01	0.01

NOTES. 1. The effective diameter, as measured at the mid-depth of the thread, must not fall below the minimum value stated. After adding to this measured size the diametral equivalent of any errors present in the flank angles, the result must not exceed the maximum value stated for the effective diameter.

2. The tolerance for pitch is 0.0002 in., and this figure is the maximum error permitted in the relative axial positions of any two threads along the length of the gauge. The error may be plus or minus.

**TABLE 7. PLUG SCREW GAUGE
FOR TESTING EFFECTIVE DIAMETER OF
THREAD IN CYLINDER NECK**



For form of thread see Fig. 2b.

Fig. 4.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in. 0.715	Effective diameter at face a	in. 0.763 2	in. 0	in. 0.000 6
	S	0.047	0.001	0
	L	$\frac{5}{8}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
1.0	Effective diameter at face a	1.048 2	0	0.000 6
	S	0.047	0.001	0
	L	$1\frac{1}{16}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
1.25	Effective diameter at face a	1.316 7	0	0.000 9
	S	0.063	0.001	0
	L	$\frac{7}{8}$	0.01	0.01
	C	$\frac{3}{8}$	0.01	0.01

NOTES. 1. This effective diameter gauge is intended to operate about half way along the thread in the cylinder neck.

2. The effective diameter, as measured at the mid-depth of the thread, must not fall below the minimum value stated. After adding to this measured size the diametral equivalent of any errors present in the flank angles, the result must not exceed the maximum value stated for the effective diameter.

TABLE 8. PLAIN PLUG GAUGE
FOR TESTING MINOR DIAMETER AT SMALL END
OF TAPER IN CYLINDER NECK

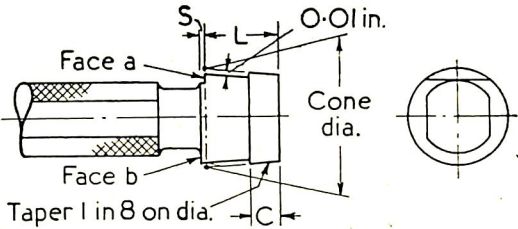


Fig. 5.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in.		in.	in.	in.
0.715	Cone diameter at face a	0.717 4	0	0.000 6
	S	0.069	0.001	0
	L	$\frac{3}{4}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
1.0	Cone diameter at face a	1.002 4	0	0.000 6
	S	0.069	0.001	0
	L	$\frac{3}{4}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
1.25	Cone diameter at face a	1.258 4	0	0.000 9
	S	0.091	0.001	0
	L	1	0.01	0.01
	C	$\frac{3}{8}$	0.01	0.01

**TABLE 9. PLAIN PLUG GAUGE
FOR TESTING MINOR DIAMETER AT LARGE END
OF TAPER IN CYLINDER NECK**

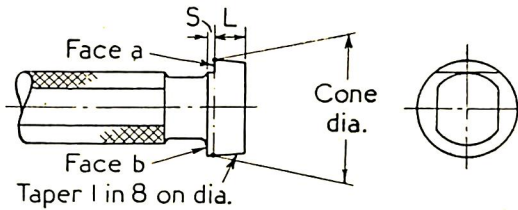


Fig. 6.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in.	Cone diameter at face a	in.	in.	in.
0.715		0.717 4	0	0.000 6
	S	0.069	0.001	0
	L	$\frac{5}{16}$	0.01	0.01
1.0	Cone diameter at face a	1.002 4	0	0.000 6
	S	0.069	0.001	0
	L	$\frac{5}{16}$	0.01	0.01
1.25	Cone diameter at face a	1.258 4	0	0.000 9
	S	0.091	0.001	0
	L	$\frac{3}{8}$	0.01	0.01

TABLE 10. FULL FORM RING SCREW GAUGE
FOR TESTING THREAD ON TAPER STEM.

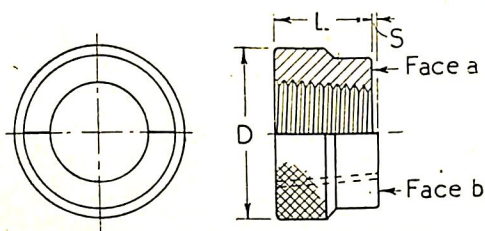
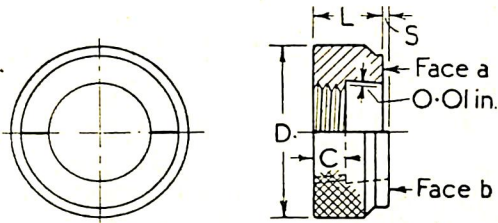


Fig. 7.

For form of thread see Fig. 2a.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in.		in.	in.	in.
0.715	Major diameter at face a	0.715 0	0.000 9	0
	Effective diameter at face a	0.669 2	0.000 6	0
	Minor diameter at face a	0.623 4	0.000 6	0
	S	0.047	0.001	0
	L	$\frac{7}{8}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.0	Major diameter at face a	1.000 0	0.000 9	0
	Effective diameter at face a	0.954 2	0.000 6	0
	Minor diameter at face a	0.908 4	0.000 6	0
	S	0.047	0.001	0
	L	1	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.25	Major diameter at face a	1.250 0	0.001 4	0
	Effective diameter at face a	1.191 7	0.000 9	0
	Minor diameter at face a	1.133 4	0.000 9	0
	S	0.063	0.001	0
	L	$1\frac{3}{4}$	0.01	0.01
	D	2	$\frac{1}{16}$	$\frac{1}{16}$

**TABLE 11. SCREW RING GAUGE
FOR TESTING EFFECTIVE DIAMETER OF TAPER STEM**



For form of thread see Fig. 2b.

Fig. 8.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in. 0.715	Effective diameter at face a	in. 0.669 2	in. 0.000 6	in. 0
	S	0.047	0.001	0
	L	$\frac{5}{8}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.0	Effective diameter at face a	0.954 2	0.000 6	0
	S	0.047	0.001	0
	L	$1\frac{1}{16}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.25	Effective diameter at face a	1.191 7	0.000 9	0
	S	0.063	0.001	0
	L	$\frac{7}{8}$	0.01	0.01
	C	$\frac{3}{8}$	0.01	0.01
	D	2	$\frac{1}{16}$	$\frac{1}{16}$

NOTE. This effective diameter gauge is intended to operate about half way along the thread on the stem.

**TABLE 12. PLAIN RING GAUGE
FOR TESTING MAJOR DIAMETER AT SMALL END
OF TAPER STEM**

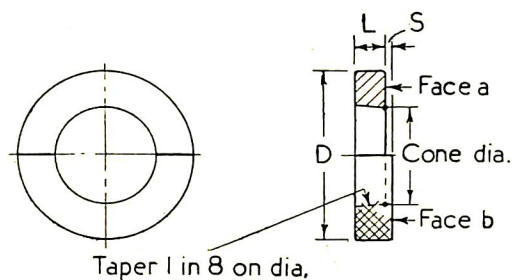


Fig. 9.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in.	Cone diameter at face a	in. 0.715 0	in. 0.000 6	in. 0
0.715	S	0.069	0.001	0
	L	$\frac{5}{16}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.0	Cone diameter at face a	1.000 0	0.000 6	0
	S	0.069	0.001	0
	L	$\frac{5}{16}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.25	Cone diameter at face a	1.250 0	0.000 9	0
	S	0.091	0.001	0
	L	$\frac{3}{8}$	0.01	0.01
	D	2	$\frac{1}{16}$	$\frac{1}{16}$

TABLE 13. PLAIN RING GAUGE
FOR TESTING MAJOR DIAMETER AT LARGE END
OF TAPER STEM

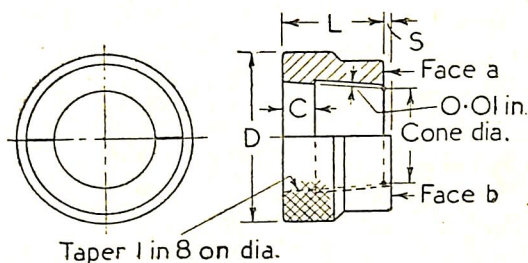


Fig. 10.

Nominal size	Dimension	Nominal value	Tolerance	
			plus	minus
in. 0.715	Cone diameter at face a	in. 0.715 0	in. 0.000 6	in. 0
	S	0.069	0.001	0
	L	$\frac{3}{4}$	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.0	Cone diameter at face a	1.000 0	0.000 6	0
	S	0.069	0.001	0
	L	1	0.01	0.01
	C	$\frac{5}{16}$	0.01	0.01
	D	$1\frac{3}{4}$	$\frac{1}{16}$	$\frac{1}{16}$
1.25	Cone diameter at face a	1.250 0	0.000 9	0
	S	0.091	0.001	0
	L	$1\frac{3}{4}$	0.01	0.0
	C	$\frac{3}{8}$	0.01	0.01
	D	2	$\frac{1}{16}$	$\frac{1}{16}$

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